

What is claimed is:

1. A method of connecting a first optical fiber having a first MFD and a second optical fiber having a second MFD smaller than the first MFD, by fusion splicing method, comprising:

5 a step of heating a portion including an adjacent end face of the first optical fiber so as to diffuse a dopant; and

a step of connecting the first and the second optical fibers by fusion splicing.

2. The method of connecting optical fibers by fusion splicing according  
10 to Claim 1, further comprising a step of heating a portion including the fusion-spliced part between the first and the second optical fibers so as to diffuse the dopant contained therein.

3. The method of connecting optical fibers by fusion splicing according  
15 to Claim 1, wherein the MFD defined by Petermann I at the adjacent end face of the first optical fiber is enlarged by at least 1  $\mu\text{m}$  by heating the portion including the adjacent end face thereof so as to diffuse the dopant during the heating step before fusion splicing.

4. An optical transmission line, including a first optical fiber having a first MFD and a second optical fiber having a second MFD smaller than the  
20 first MFD, fabricated by a process comprising:

a step of heating a portion including an adjacent end face of the first optical fiber so as to diffuse a dopant; and

a step of connecting the first and the second optical fibers by fusion

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splicing.

5. An optical transmission line, including a first optical fiber having a first MFD and a second optical fiber having a second MFD smaller than the first MFD, fabricated by a process comprising:

- 5 a step of heating a portion including an adjacent end face of the first optical fiber so as to diffuse a dopant;

a step of connecting the first and the second optical fibers by fusion splicing; and

- 10 a step of heating a portion including the fusion-spliced part between the first and the second optical fibers so as to diffuse the dopant contained therein.

6. The optical transmission line according to Claim 4, wherein the MFD defined by Petermann I at the fusion-spliced part of the first and the second optical fibers becomes at least  $1\text{ }\mu\text{m}$  larger than those at the other parts thereof.

- 15 7. The optical transmission line according to Claim 5, wherein the MFD defined by Petermann I at the fusion-spliced part of the first and the second optical fibers becomes at least  $1\text{ }\mu\text{m}$  larger than those at the other parts thereof.

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